SHORT CASES IN CARDIOLOGY

Cardiac metastasis of an esthesioneuroblastoma

Tushar Chatterjee, Markus F Müller, Bernhard Meier

Department of Cardiology, University Hospital Bern, Switzerland
T Chatterjee
B Meier

Department of Radiology, University Hospital Bern, Switzerland
M F Müller

Correspondence to:
Dr T Chatterjee, Department of Cardiology, University Hospital, 3010 Bern, Switzerland.

Accepted for publication 16 August 1996

The esthesioneuroblastoma is an uncommon neoplasm arising from the nasal-olfactory epithelium located in the superior third of the nasal septum, cribriform plate, and superior turbinate regions. Cervical lymph node metastases occur in 10% of cases. Haematogeneous metastases are unusual at presentation, but may occur subsequently at the time of relapse in bone, bone marrow, lung, or skin.[1]

A 56 year old white man was admitted to our hospital with shortness of breath, fatiguability, and weight loss in the past two months. He had undergone curative surgical resection and postoperative radiation therapy of the paranasal sinuses for an esthesioneuroblastoma 13 years ago. Cardiac examination was unremarkable except for a splitting of the first heart sound and a 2/6 decrescendo diastolic murmur, audible at the right sternal border. The electrocardiogram showed sinus rhythm, left axis deviation, partial right bundle branch block and negative T waves in leads II, III, aVF, and V1–V6. The chest *x* ray showed a 7 × 7 cm tumour in the mid-mediastium in the region of the left hilus and multiple bilateral small nodules in the lungs. On computed tomography this mass was suspected to be contiguous with the pericardium. It encased the lower lobe bronchial system. The first differential diagnosis was bronchial carcinoma. A transthoracic echocardiogram showed a mass in the right ventricle with extensive myocardial infiltration into the right ventricular wall. The echocardiogram did not show obstruction of the right ventricular outflow tract (fig 1). Magnetic resonance imaging showed a tumour extending from the right ventricular wall into the right ventricular chamber (fig 2). The infrahilar mass encased a pulmonary vein and the lower lobe bronchi but did not infiltrate the pericardium. Transbronchial fine needle puncture confirmed metastatic esthesioneuroblastoma. Two cycles of chemotherapeutic agents (endoxane, vincristine, adriblastine, and dacarbazine) induced a significant regression of the metastasis.

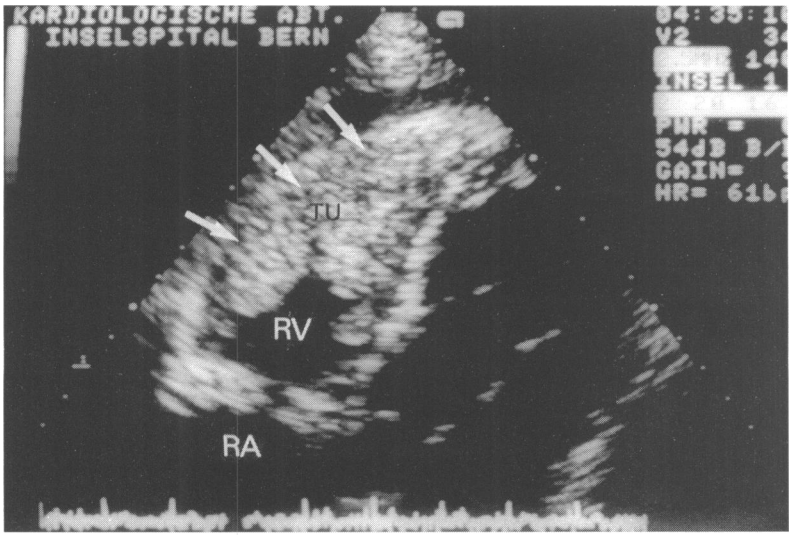

Figure 1 Apical four chamber view of a transthoracic echocardiogram showing a tumour (TU) in the right ventricle with the extensive infiltration of the right ventricle wall (arrows). RV, right ventricle; RA, right atrium.

Primary cardiac tumours are rare but cardiac metastases are not infrequent. Necropsy series have reported a 5 to 20% incidence of metastatic carcinoma in the heart and pericardium in patients dying of malignancy.[2] The most common tumours associated with cardiac metastases are lung, breast, melanoma, leukaemia, lymphoma, and sarcoma. Cardiac tumours may consist of direct extensions into the heart (lung, breast, oesophagus) or arise from haematogenous (melanoma, lymphoma, sarcoma) or lymphatic spread. The heart is frequently involved in patients with multiple intrathoracic metastases and diffuse carcinomatosis as in our patient. Tumours of this sort can be documented by radionuclide ventriculography or angiography, but transthoracic echocardiography is the preferred method.[3] When there are pericardial and paracardial space occupying lesions, transoesophageal echocardiography is superior to transthoracic echocardiography.[4] Good results can also be obtained with spiral computed tomography and magnetic resonance imaging.[5] This is, to our knowledge, the first published case of a cardiac metastasis of an esthesioneuroblastoma.

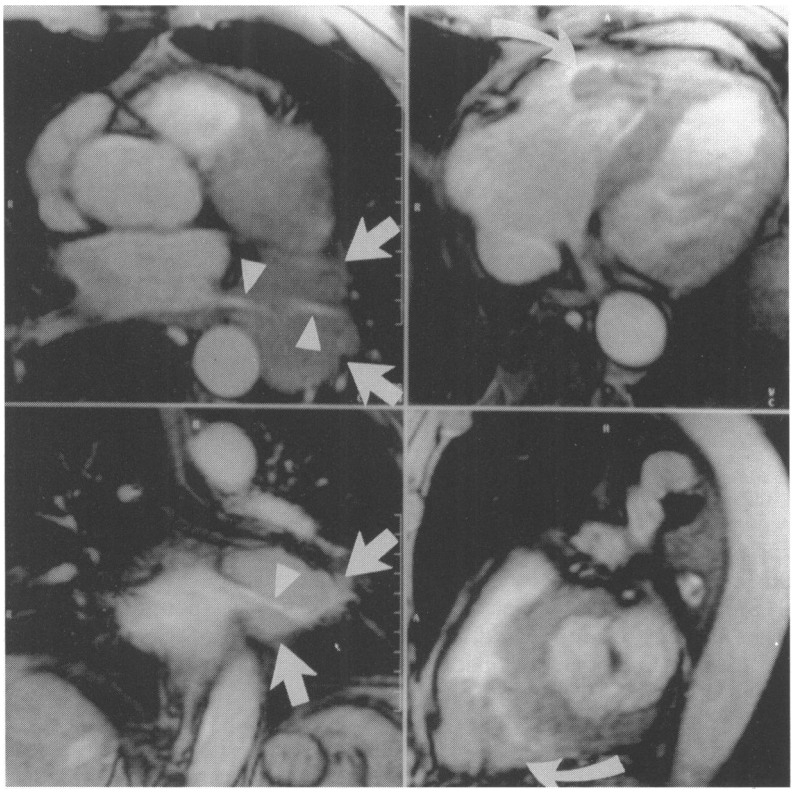

Figure 2 Breath held gradient-echo magnetic resonance images (TR/TE/flip angle = 131/7·3/20°) acquired during diastole. Left upper and left lower: axial and coronal images, respectively, at the level of the left atrium showing a tumour (arrows) encasing a left pulmonary vein (arrow heads). Right upper and right lower: axial and sagittal images, respectively, at the level of the left and right ventricles demonstrating the tumuor (curved arrow) extending from the right ventricular wall into the right ventricular chamber.

1 Stewart FM, Frieson HF, Levine PA, Spaulding CA. Esthesioneuroblastoma. In: Williams CJ, Krikorian JG, Grenn MR, Raghavan D, eds. *Textbook of uncommon cancer.* Chichester: John Wiley. 1988:631–52.
2 Hanfling SM. Metastatic cancer to the heart: review to the literature and report of 127 cases. *Circulation* 1960;**22**: 474–83.
3 Kutalek SP, Panidis IP, Kotler MN, Mintz GS, Carver J, Ross JJ. Metastatic tumors of the heart detected by two-dimensional echocardiography. *Am Heart J* 1985;**109**: 343–9.
4 Engberding R, Daniel WG, Erbel R, Kasper W, Lestuzzi C, Curtis JM, *et al* and the European Cooperative Study Group. Diagnosis of the heart tumors by transesophageal echocardiography: a multicenter study in 154 patients. *Eur Heart J* 1993;**14**:1223–8.
5 Freedberg RS, Kronzon I, Rumancik WM, Liebeskind D. The contribution of magnetic resonance imaging to the evaluation of intracardiac tumors diagnosed by echocardiography. *Circulation* 1988;77:96–103.